

A fall left a man paralyzed. Now a robotic 'exoskeleton' lets him walk again.

June 12 2017, by Bruce Henderson, The Charlotte Observer

CHARLOTTE, N.C. - Five years after he fell while building a treehouse, paralyzing him from the waist down, Scot Mills stood from his chair at Carolinas Rehabilitation last Monday and took a stroll outdoors.

He did it while strapped to a robotic "exoskeleton," a device named after the rigid outer covers that in nature supports and protects insects, spiders and shellfish.

Mills, 43, who lives in Rocky Mount, Va., trained twice a week for two months at the Charlotte hospital before becoming its first graduate of a program in home use of the device.

After the 24-foot fall shattered a vertebra, doctors told him he wouldn't walk again. "I thought it was over," Mills said. "What can you do in a wheelchair?"

Then friends saw the device on Facebook.

Maker ReWalk Robotics says it was developed by an Israeli scientist who became a quadriplegic after an all-terrain vehicle accident. ReWalk says the product is the first exoskeleton cleared by the Food and Drug Administration for rehabilitation and personal use in the U.S.

The company has sold more than 300 units worldwide and partners with the U.S. Department of Veterans Affairs. Mills' insurance paid for the

\$95,000 version he will use at home.

Wearing a green "BELIEVE" T-shirt, the former construction worker and welder pressed a button on a wristwatch that lets him sit, stand or walk.

A slight sideward tilt of his upper body, steadied by two canes, triggered a computer-based control system and motion sensors. Motors in the device's hip and knee joints, powered by batteries strapped to his lower back, whirred his feet forward. Dragging a foot stopped motion.

Tonja Grantham, Mills' fiancée, walked behind him, ready for the help he never needed.

"After five years it feels really good to get up and walk around," he said after a five-minute walk down a hallway, outside and back again. "It's kind of like starting all over, at first there was a little wobble and you hope you don't fall down."

Mills is still an active guy, snow skiing every winter on a bucket strapped to skis. His conditioning helped make him a good candidate for the exoskeleton, said Ryan Medas, a clinical specialist in neurology at Carolinas Rehabilitation.

Loren Wass, a ReWalk Robotics vice president, expects the 55-pound device to grow smaller and lighter over time as engineers hone its design, the way bulky bag phones evolved into slim smart phones.

For now, Mills expects to fulfill a goal from the start of his training: to walk down the aisle on his Sept. 9 wedding day.

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Citation: A fall left a man paralyzed. Now a robotic 'exoskeleton' lets him walk again. (2017, June 12) retrieved 11 May 2024 from <https://phys.org/news/2017-06-fall-left-paralyzed-robotic-exoskeleton.html>

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